IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Steven Maddocks, et al.	Examiner: Sherrod L. Keaton
Serial No.:	10/757,762	Group Art Unit: 2175
Filed:	January 14, 2004	Docket No.: 200315423-1
Title:	User Interface for a Storage Network	

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is filed in response to the Final Office Action mailed November 14, 2008 and Notice of Appeal filed on February 16, 2009.

AUTHORIZATION TO DEBIT ACCOUNT

It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's deposit account no. 08-2025.

I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

II. RELATED APPEALS AND INTERFERENCES

There are no known related appeals, judicial proceedings, or interferences known to appellant, the appellant's legal representative, or assignee that will directly affect or be directly affected by or have a bearing on the Appeal Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1 – 23 are pending in the application and stand finally rejected. The rejection of claims 1 – 23 is appealed.

IV. STATUS OF AMENDMENTS

No amendments were made after receipt of the Final Office Action. All amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each of the claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element or that these are the sole sources in the specification supporting the claim features.

Claim 1

A storage network comprising (Fig. 1 shows a storage area network 100):

an automated storage system (Fig. 1, #101) including data access drives (Fig. 1, #150) that perform read or write operations on storage media (Fig. 1, #135) and transfer robotics (Fig. 1, #160) that transfer the storage media to the data access drives (The storage system 101 includes data access drives 150a, 150b, 150c, 150d (also referred to generally by reference 150) for read and/or write operations on the storage medium 135: see paragraph [0022]. Transfer robotics 160 transport the storage media 135 in the storage system 101 and retrieve storage media 135 (e.g., from the storage cells 140a, 140b), transport the storage media 135, and eject the storage media 135 at an intended destination (e.g., one of the data access drives 150): see paragraph [0023]);

an interface manager (Fig. 1, # 180) communicatively coupled to each of the data access drives and transfer robotics, the interface manager aggregating configuration information for the data access drives and transfer robotics in the automated storage system (Interface manager 200 aggregates device information and management commands for a storage system (e.g., storage system 101 in FIG. 1). Interface manager 200 outputs device information and receives management commands via the user interface 210, thereby enabling a network administrator (or other user) to centrally manage access to the storage system: see paragraph [0030]));

an interface application (Fig. 2, #270) provided in computer-readable storage at the interface manager, the interface application generating user interface rendering data

for the configuration information (Interface application 270 generates a graphical user interface (see e.g., FIGS. 3a and 3b) based at least in part on the device information and management commands in the management pipeline 260: [0038])); and

a graphical user interface (Fig. 3b, #300 and Fig. 4, #400) operatively associated with the interface application, the graphical user interface outputting the configuration information in accordance with the user interface rendering data and receiving user input to grant and deny access permissions for hosts to both the data access drives and to the transfer robotics (A user may configure access permissions for one or more of the hosts by selecting a host from the Host Access table 392. For example, host "2100e08b11" is shown selected at 393 in FIG. 3b: see [0055]. As shown in Fig. 4, operation space 430 includes a host access table 450 identifying the various hosts and corresponding system devices in the selected storage system. A user may configure one or more of the hosts for the selected storage system, for example, by selecting and deselecting devices corresponding to the host. For purposes of illustration, the user may move graphical pointer 460 to the Robotics checkbox and click the mouse button to place a check 455 in the checkbox 457. Accordingly, the host identified as "21003e8b111" is configured for access to the transfer robotics. See paragraph [0060]).

Claim 5

The storage network of claim 1 wherein the graphical user interface displays a logical map of the data access drives and transfer robotics (Fig. 4 shows a table 450 with rows and columns that identify access permissions for data access drives and transfer robotics. A user can configure the access permissions by selecting one or more of the rows and/or columns to grant or deny access for hosts to the data access drives and transfer robotics: see paragraphs [0060] and [0061].).

Claim 6

The storage network of claim 1 wherein the graphical user interface displays access permissions for the data access drives and transfer robotics in a table format (Fig. 4 shows a table 450 with rows and columns that identify access permissions for data access drives and transfer robotics. A user can configure the access permissions by

selecting one or more of the rows and/or columns to grant or deny access for hosts to the data access drives and transfer robotics: see paragraphs [0060] and [0061].).

Claim 7

The storage network of claim 1 wherein the graphical user interface receives user input to deny and grant the access permissions by selecting one or more of the rows or columns in a window (Fig. 4 shows a table 450 with rows and columns that identify access permissions for data access drives and transfer robotics. A user can configure the access permissions by selecting one or more of the rows and/or columns to grant or deny access for hosts to the data access drives and transfer robotics: see paragraphs [0060] and [0061].).

Claim 8

In an automated storage system (Fig. 1, #101) linked to a graphical user interface (Fig. 3b, #300 and Fig. 4, #400) including a display and a user interface selection device, a method comprising (The graphical user interface 300 supports user interaction through common techniques, such as a pointing device (e.g., mouse, style), keystroke operations, or touch screen. See paragraph [0043]. Fig. 6 is a flowchart illustrating exemplary operations to implement a graphical user interface in a storage network: see paragraph [0066]):

aggregating configuration information at an interface manager for a plurality of system devices including data access drives that receive movable storage media from transfer robotics in the automated storage system (Fig. 6, #600: A logical configuration of the storage system is generated, for example, at the interface manager based on aggregated device information from the interface controllers. The logical configuration includes plurality of logical devices (also called logical units or LUNs) allocated within the storage system: see paragraph [0067].);

generating user interface rendering data at the interface manager (Operation 600, a logical configuration of the storage system is generated, for example, at the interface manager based on aggregated device information from the interface controllers: see paragraph [0067].);

displaying the configuration information in an application window at the graphical user interface in accordance with the user interface rendering data (Fig. 6, #610: The logical configuration generated in operation 600 is displayed in a graphical user interface, for example, as illustrated in FIGS. 3a and 3b.See paragraph [0068]); and

receiving user input in the application window to change access permissions of hosts to the data access drives and the transfer robotics (Fig. 6, #620: In operation 620, configuration commands for the storage system are received via the graphical user interface. For example, a network administrator may configure access to one or more of the system devices as illustrated in FIG. 4. See paragraph [0068]. In operation 630, the logical configuration of the storage system is updated. For example, the logical configuration may be updated to indicate that a host is granted access to the transfer robotics and another host is denied access to one or more of the data access drives, based on the configuration commands received during operation 620. See paragraph [0069]).

Claim 11

The automated storage system of claim 8 wherein the method further comprises receiving the user input in the application window to grant and deny the hosts access to the data access drives and the transfer robotics (Fig. 4 shows a table 450 with rows and columns that identify access permissions for data access drives and transfer robotics. A user can configure the access permissions by selecting one or more of the rows and/or columns to grant or deny access for hosts to the data access drives and transfer robotics: see paragraphs [0060] and [0061].).

Claim 17

A method comprising (Fig. 6 is a flowchart illustrating exemplary operations to implement a graphical user interface in a storage network: see paragraph [0066]):

aggregating configuration information for a plurality of system devices that include drives for reading and writing data to movable storage media received from transfer robotics in a storage system (Fig. 6, #600: A logical configuration of the storage system is generated, for example, at the interface manager based on aggregated device information from the interface controllers. The logical configuration includes plurality of

logical devices (also called logical units or LUNs) allocated within the storage system: see paragraph [0067].);

generating user interface rendering data (Operation 600, a logical configuration of the storage system is generated, for example, at the interface manager based on aggregated device information from the interface controllers: see paragraph [0067].);

displaying the configuration information as a logical map of the system devices at a graphical user interface in accordance with the user interface rendering data (Fig. 6, #610: The logical configuration generated in operation 600 is displayed in a graphical user interface, for example, as illustrated in FIGS. 3a and 3b.See paragraph [0068]); and

receiving user selections from the graphical user interface to edit access permissions of hosts to the drives and the transfer robotics (Fig. 6, #620: In operation 620, configuration commands for the storage system are received via the graphical user interface. For example, a network administrator may configure access to one or more of the system devices as illustrated in FIG. 4. See paragraph [0068]. In operation 630, the logical configuration of the storage system is updated. For example, the logical configuration may be updated to indicate that a host is granted access to the transfer robotics and another host is denied access to one or more of the data access drives, based on the configuration commands received during operation 620. See paragraph [0069]).

Claim 18

The method of claim 17 further comprising receiving user selections from the graphical user interface to add and remove drives from the system devices (Fig. 4 shows a table 450 with rows and columns that identify access permissions for data access drives and transfer robotics. A user can configure the access permissions by selecting one or more of the rows and/or columns to grant or deny access for hosts to the data access drives and transfer robotics: see paragraphs [0060] and [0061].).

Claim 21

An automated storage system (Fig. 1, #101), comprising:

data access drives (Fig. 1, #150) that perform read or write operations on storage media (Fig. 1, #135) in the automated storage system (The storage system 101 includes

data access drives 150a, 150b, 150c, 150d (also referred to generally by reference 150) for read and/or write operations on the storage medium 135: see paragraph [0022].);

transfer robotics (Fig. 1, #160) that transfer the storage media to the data access drives (Transfer robotics 160 transport the storage media 135 in the storage system 101 and retrieve storage media 135 (e.g., from the storage cells 140a, 140b), transport the storage media 135, and eject the storage media 135 at an intended destination (e.g., one of the data access drives 150): see paragraph [0023]); and

an interface manager (Fig. 1, # 180) communicatively coupling to hosts to provide access to the data access drives, the transfer robotics, and the storage media, wherein the interface manager provides configuration information so a user at a graphical user interface (Fig. 3b, #300 and Fig. 4, #400) communicates with the automated storage system to grant and deny access permissions for the hosts to both the data access drives and to the transfer robotics (A user may configure access permissions for one or more of the hosts by selecting a host from the Host Access table 392. For example, host "2100e08b11" is shown selected at 393 in FIG. 3b: see [0055]. As shown in Fig. 4, operation space 430 includes a host access table 450 identifying the various hosts and corresponding system devices in the selected storage system. A user may configure one or more of the hosts for the selected storage system, for example, by selecting and deselecting devices corresponding to the host. For purposes of illustration, the user may move graphical pointer 460 to the Robotics checkbox and click the mouse button to place a check 455 in the checkbox 457. Accordingly, the host identified as "21003e8b111" is configured for access to the transfer robotics. See paragraph [0060]).

Claim 22

The automated storage system of claim 21, wherein the graphical user interface identifies the hosts and the data access drives so the user can change the access permissions between the hosts and the data access drives (A user may configure access permissions for one or more of the hosts by selecting a host from the Host Access table 392. See paragraph [0055]. The user may also configure access permissions by selecting one or more rows and/or columns to grant or deny access for the hosts and/or system devices. See paragraph [0061].).

Claim 23

The automated storage system of claim 21, wherein the graphical user interface provides a window that displays which of the hosts are connected to which of the data access drives so the user can alter the access permissions between the hosts and the data access drives (FIG. 4 is a diagrammatic illustration of application window 400 that may be launched in response to the user selecting the "Edit Host Access" menu option from application window 320 in FIG. 3b. See paragraph [0057].).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-7 and 21-23are rejected under 35 USC § 103(a) as being unpatentable over USPN 6,839,747 (Blumenau) in view of Applicants Admitted Prior Art (AAPA).

Claims 8, 10-12, and 17-19 are rejected under 35 USC § 103(a) as being unpatentable over USPN 6,839,747 (Blumenau) in view of Applicants Admitted Prior Art (AAPA).

Claims 13-16 and 19-20 are rejected under 35 USC § 103(a) as being unpatentable over USPN 6,839,747 (Blumenau) in view of Applicants Admitted Prior Art (AAPA), USPN 6,212,606 (Dimitroff), and US publication number 2004/0032430 (Yung).

VII. ARGUMENT

The rejection of claims 1 – 23 is improper, and Appellants respectfully request reversal of these rejections.

The claims do not stand or fall together. Instead, Appellants present separate arguments for various claims. Each of these arguments is separately argued below and presented with separate headings and sub-heading as required by 37 C.F.R. § 41.37(c)(1)(vii).

Claim Rejections: 35 USC § 103(a)

Claims 1-7 and 21-23are rejected under 35 USC § 103(a) as being unpatentable over USPN 6,839,747 (Blumenau) in view of Applicants Admitted Prior Art (AAPA). These rejections are traversed.

Principles of Law: Claim Construction

During examination of a patent application, pending claims are given their broadest reasonable construction consistent with the specification (see *In re Prater,* 415 F.2d 1393,1404-05 (CCPA 1969); *In re Am. A cad. a/Sci.Tech Ctr.,* 367 F.3d 1359, 1364 (Fed. Cir. 2004)).

Although a patent applicant is entitled to be his or her own lexicographer of terms in a claim, in *ex parte* prosecution the lexicography must be within limits. *In re Carr,* 347 F.2d 578,580 (CCPA 1965). The applicant must do so by placing such definitions in the specification with sufficient clarity to provide a person of ordinary skill in the art with clear and precise notice of the meaning that is to be construed. *See also In re Paulsen,* 30 F.3d 1475, 1480 (Fed. Cir. 1994) (although an inventor is free to define the specific terms used to describe the invention, this must be done with reasonable clarity, deliberateness, and precision; where an inventor chooses to give terms uncommon meanings, the inventor must set out any uncommon definition in some manner within the patent disclosure so as to give one of ordinary skill in the art notice of the change).

Principles of Law: Obviousness

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in *KSR International Co. v. Teleflex Inc.*, 550 U.S._, 82 USPQ2d 1385 (2007):

> Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. Quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966).

As set forth in MPEP 2143.03, to ascertain the differences between the prior art and the claims at issue, "[a]ll claim limitations must be considered" because "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385.

According to the Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in view of *KSR International Co. v. Teleflex Inc.*, Federal Register, Vol. 72, No. 195, 57526, 57529 (October 10, 2007), once the *Graham* factual inquiries are resolved, there must be a determination of whether the claimed invention would have been obvious to one of ordinary skill in the art based on any one of the following proper rationales:

> (A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable

results; (E) ''Obvious to try''—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. *KSR International Co. v. Teleflex Inc.*, 550 U.S._, 82 USPQ2d 1385 (2007).

Furthermore, as set forth in *KSR International Co. v. Teleflex Inc.*, quoting from *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006), "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasonings with some rational underpinning to support the legal conclusion of obviousness."

Therefore, if the above-identified criteria and rationales are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

Scope and Content of Art and Overview of Claims

As a precursor to the arguments, Appellants provide an overview of the claims and the primary references (AAPA, Blumenau, and Yung). This overview will assist in determining the scope and content of the prior art as required in Graham (see *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 setting out an objective analysis for applying 103 rejections).

As discussed in Applicants' Background (AAPA), automated storage systems store large volumes of data on various types of storage media, such as magnetic tape cartridges and optical storage media. System devices in the storage system are mapped, and users are given access to one or more access drives for read and/or write operations and to transfer robotics (also known as a picker) to move the storage media between

storage cells and the data access drives. Maintaining and understanding the map of the storage system can be quite challenging.

Blumenau teaches a GUI that allows a user to modify the topology of a network and availability of storage volumes assigned to hosts. The GUI communicates with the storage system to identify hosts logged into the network and identify whether access to a particular storage volume is permitted by a particular host. In Blumenau, a user cannot use the GUI to control host access to specific pickers and specific drives.

Yung teaches a user interface for biological laboratories, not automated storage systems. The laboratory has numerous biological processing instruments for processing biological samples. The graphical user interface in Yung monitors and controls these instruments in the biological laboratory.

The claims are directed to a GUI for an automated storage library. The GUI displays in a window hosts connected to the library. Through the GUI, the user can change access permissions to both the picker and individual drives for each of the hosts. In other words, a user can change which pickers (i.e., transfer robotics) and which drives the hosts can access and use. The GUI enables finite control of specific devices so the user can control host access to specific pickers and drives.

Differences Between the Art and Claims

Each of the independent claims recites one or more elements that are not taught or suggested in Blumenau in view of AAPA. These missing elements show that the differences between the combined teachings in the art and the recitations in the claims are great. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

These differences are shown below and presented with separate headings for different claim groups.

Sub-Heading: Claims 1- 4 and 21

Independent claim 1 is selected for discussion.

As an example, claim 1 recites that the GUI receives "user input to grant and deny access permissions for hosts to both the data access drives and to the transfer robotics." In

other words, the user can utilize the GUI to grant and deny access permissions to both the access drives and the transfer robotics (i.e., picker) for the hosts. This claim element is not taught or suggested in Blumenau in view of AAPA.

Paragraph [0003] in AAPA states that "users may be given access to one or more data access drives, for read and/or write operations, and to transfer robotics to move the storage media between storage cells and the data access drives." This paragraph teaches that a user can use drives and transfer robotics for performing read and write operations to storage media. This paragraph, however, never suggests that this user can control access permissions to both the drives and transfer robotics. In other words, AAPA merely teaches providing access to or using data access drives and transfer robotics. No teaching is provided that a user can grant and deny access permissions to both the drives and the transfer robotics.

Blumenau teaches a GUI that allows a user to modify the topology of a network and availability of storage volumes assigned to hosts. Although Blumenau teaches modifying the topology, **Blumenau does not teach modifying host permissions to specific drives and transfer robotics**. Blumenau does not offer this level of finite control in the storage area network. Blumenau explains the type of control and access a user has with the GUI:

> In one embodiment of the present invention, a graphical user interface (GUI) is provided with which a user can graphically view the availability and assignment of data storage volumes to different hosts in a storage network. The GUI also allows a user to graphically view the topology of the network (i.e., how network devices such as hosts, HBAs, storage systems, storage system adapters, etc., are interconnected in the network), and to graphically modify the topology of the network and/or the availability and assignment of storage volumes to different hosts in the network. Advantageously, the GUI permits network devices and the availability and assignment of storage volumes on a storage system to be viewed, managed, and modified.

Blumenau teaches a GUI that allows a user to modify the topology of the network and availability of storage volumes assigned to hosts. By contrast, claim 1 recites that the GUI receives user input to grant and deny access permissions "for hosts to both the data access drives and to the transfer robotics." So, although Blumenau teaches modifying the topology, Blumenau does not teach modifying host permissions to both drives and transfer robotics.

Claim 1 recites a level of control that includes both drives and transfer robots. This level of finite control provides the system administrator with significant advantage since workloads and storage assignments can be altered between not only the larger storage volumes but also the smaller sub-components, namely the drives and pickers. This level of control was not known in the art before Appellants' invention.

For at least these reasons, the claims are allowable over Blumenau in view of AAPA.

Sub-Heading: Claim 5

Claim 5 recites that the graphical user interface displays a logical map of the data access drives and transfer robotics. The examiner argues that this claim element is taught in Blumenau in Fig. 14 and column 17, line 61 – column 18, line 8. Appellants respectfully disagree.

Blumenau in Fig. 14 and column 17, line 61 – column 18, line 8 teaches a general GUI that illustrates hosts connected to data storage volumes. The figure and accompanying description does not teach or even suggest a map with data access drives and transfer robotics. This level of granularity (i.e., access drives and transfer robotics) is not suggested in Blumenau in view of AAPA.

Sub-Heading: Claim 6

Claim 6 recites that the graphical user interface displays access permissions for the data access drives and transfer robotics in a table format. In other words, the system administrator can view access permissions in a table for finite and specific devices, namely data access drives and transfer robotics. The Examiner argues that this element is

taught in the Fig. 16 and column 30, lines 49-63 of Blumenau. Appellants respectfully disagree.

Fig. 16 and column 30, lines 49-63 of Blumenau teach a storage volume view pane showing whether access rights have been assigned to that volume, capacity of a storage volume, a port to access the storage volume, and other information (see column 29, lines 40-52). This teaching is very different than claim 6 which recites a much finer level of control and visualization. As stated in claim 6, the GUI displays access permissions for pickers and data access drives. This visualization provides the system administrator with a much finer degree of control and view of the network map.

Sub-Heading: Claim 7

Claim 7 recites that the graphical user interface receives user input to deny and grant access permissions by selecting one or more of the rows or columns in a window. The Examiner argues that this element is taught in the abstract of Blumenau and column 29, line 57 to column 30, line 19. Appellants respectfully disagree.

The cited sections of Blumenau teach a GUI wherein a user can click on a device and determine path connects associated with the device. This teaching is very different than claim 7 which recites a much finer level of control and visualization of the storage devices. As stated in claim 7, the system administrator can view and then alter (deny or grant) access permissions to specific devices, namely data access drives and transfer robotics, by selecting one or more of the rows or columns in a window.\. This visualization provides the system administrator with a much finer degree of control and view of the network map.

Sub-Heading: Claim 22

Claim 22 recites that the graphical user interface identifies the hosts and the data access drives so the user can change the access permissions between the hosts and the data access drives. In other words, the user is able to change access permissions between hosts and the drives. The examiner argues that this claim element is taught in the abstract of Blumenau. Appellants respectfully disagree.

The abstract of Blumenau teaches a GUI that identifies which hosts are logged into the network and identifies whether access to a particular storage volume is permitted for a particular host. Thus, the system administrator can determine whether a specific host can access a specific storage volume. This teaching is very different than claim 22 which recites that the user can change the access permissions between the hosts and the data access drives. The user in Blumenau does not have this level of control.

Sub-Heading: Claim 23

Claim 23 recites that the graphical user interface provides a window that displays which of the hosts are connected to which of the data access drives so the user can alter the access permissions between the hosts and the data access drives. In other words, the user is able to view a window and change access permissions between hosts and the drives. The examiner argues that this claim element is taught in the abstract of Blumenau. Appellants respectfully disagree.

The abstract of Blumenau teaches a GUI that identifies which hosts are logged into the network and identifies whether access to a particular storage volume is permitted for a particular host. Thus, the system administrator can determine whether a specific host can access a specific storage volume. This teaching is very different than claim 23 which recites a window that displays which of the hosts is connected to which of the data access drives so the user can alter the access permissions between the hosts and the data access drives. The user in Blumenau does not have this level of control.

Claim Rejections: 35 USC § 103(a)

Claims 8, 10-12, and 17-19 are rejected under 35 USC § 103(a) as being unpatentable over USPN 6,839,747 (Blumenau) in view of Applicants Admitted Prior Art (AAPA). These rejections are traversed.

Sub-Heading: Claims 8, 10, 12, 17, 18, and 19

Independent claim 8 is selected for discussion.

Independent claim 8 recites receiving user input in the application window to change access permissions of hosts to the data access drives and the transfer robotics. In

other words, input is received to change access permissions of hosts to both data access drives and transfer robotics. This claim element is not taught or suggested in Blumenau in view of AAPA.

Paragraph [0003] in AAPA states that "users may be given access to one or more data access drives, for read and/or write operations, and to transfer robotics to move the storage media between storage cells and the data access drives." This paragraph teaches that a user can use drives and transfer robotics for performing read and write operations to storage media. This paragraph, however, never suggests that this user can control access permissions to both the drives and transfer robotics. In other words, AAPA merely teaches providing access to or using data access drives and transfer robotics. No teaching is provided that a user can grant and deny access permissions to both the drives and the transfer robotics.

Blumenau teaches a GUI that allows a user to modify the topology of a network and availability of storage volumes assigned to hosts. Although Blumenau teaches modifying the topology, **Blumenau does not teach modifying host permissions to specific drives and transfer robotics**. Blumenau does not offer this level of finite control in the storage area network. Blumenau explains the type of control and access a user has with the GUI:

> In one embodiment of the present invention, a graphical user interface (GUI) is provided with which a user can graphically view the availability and assignment of data storage volumes to different hosts in a storage network. The GUI also allows a user to graphically view the topology of the network (i.e., how network devices such as hosts, HBAs, storage systems, storage system adapters, etc., are interconnected in the network), and to graphically modify the topology of the network and/or the availability and assignment of storage volumes to different hosts in the network. Advantageously, the GUI permits network devices and the availability and assignment of storage volumes on a storage system to be viewed, managed, and modified.

Blumenau teaches a GUI that allows a user to modify the topology of the network and availability of storage volumes assigned to hosts. By contrast, claim 8 recites receiving user input in the application window to change access permissions of hosts to **the data access drives and the transfer robotics**. So, although Blumenau teaches modifying the topology, Blumenau does not teach modifying host permissions to both drives and transfer robotics.

Claim 8 recites a level of control that includes both drives and transfer robots. This level of finite control provides the system administrator with significant advantage since workloads and storage assignments can be altered between not only the larger storage volumes but also the smaller sub-components, namely the drives and pickers. This level of control was not known in the art before Appellants' invention.

For at least these reasons, the claims are allowable over Blumenau in view of AAPA.

Sub-Heading: Claim 11

Claim 11 recites receiving the user input in the application window to grant and deny the hosts access to the data access drives and the transfer robotics. The examiner argues that this claim element is taught in Fig. 16 and column 17, lines 44-60 and column 30, lines 49-63 of Blumenau. Appellants respectfully disagree.

The cited sections of Blumenau teach a user interface that allows a user to manage the availability and assignment of data storage volumes to different hosts in a storage network. The user, however, is unable grant and deny access to both the drives and the transfer robotics. Blumenau does not suggest this level of finite control.

Claim Rejections: 35 USC § 103(a)

Claims 13-16 and 19-20 are rejected under 35 USC § 103(a) as being unpatentable over USPN 6,839,747 (Blumenau) in view of Applicants Admitted Prior Art (AAPA), USPN 6,212,606 (Dimitroff), and US publication number 2004/0032430 (Yung). These rejections are traversed.

As explained above, Blumenau in view of AAPA fails to teach or suggest all of the elements of the independent claims. Dimitroff and Yung fail to cure these

deficiencies. For at least these reasons, dependent claims 13-16 and 19-20 are allowable over Blumenau in view of AAPA, Dimitroff, and Yung.

Additionally, as explained below, these references are not properly combinable under section 103. Specifically, Appellants show that Blumenau and Yung are not properly combinable.

Dimitroff teaches a method for establishing a standardized shared level for storage units in a multi-server environment. This shared level, however, does not include or even suggest displaying a logical map of such detail as the access drives and transfer robotics. Dimitroff teaches that access parameters enable a host to determine the presence of storage units, but nowhere can a user see host access to access drives and transfer robotics through a GUI. This level of control is simply not taught in Dimitroff.

Yung teaches a user interface for biological laboratories, not automated storage systems.

Factors/Rationale Do Not Support Obviousness

In determining obviousness, neither the particular motivation to make the claimed invention nor the problem the inventor is solving controls. The proper analysis is whether the claimed invention would have been obvious to one of ordinary skill in the art after consideration of all the facts. Further, although the Supreme Court in KSR cautioned against an overly rigid application of the teaching-suggestion-motivation (TSM) rationale, the Supreme Court recognized that TSM was one of a number of valid rationales that could be used to determine obviousness.

Appellants discuss examples of rationale or factors below to show that there is no finding of obviousness.

As a first factor, Appellants respectfully submit that no teaching or suggestion exists to make the combination because the references are directed to different inventions. Yung teaches a user interface for biological laboratories, not automated storage systems. Yung mentions the words "storage device" and "transferring robotics devices" (example at paragraph [0011]), but these words are not in the context of an automated storage system wherein drives perform read or write operations on storage media and the transfer robotics transfer the storage media to the data access drives. By

contrast, Blumenau teaches a GUI that allows a user to modify the topology of a network and availability of storage volumes assigned to hosts. Blumenau has nothing to do with using a GUI in a biological laboratory.

As a second factor, Yung and Blumenau would have to be greatly modified to arrive at the claimed invention. In Yung, the GUI is for viewing biological instruments, not pickers and access drives such as those found in a storage library. The biological laboratory would have to be greatly modified to accept pickers, data drives, etc. found in an automated storage library of a SAN.

As a third factor, the differences between the claims and the applied references are great. As explained above, claim 1 recites that the GUI receives user input to change access permissions for hosts to both the data access drives and to the transfer robotics. In other words, the user can utilize the GUI to change access permissions to both the access drives and the transfer robotics (i.e., picker) for the hosts. Blumenau teaches a GUI having a much broader function that does not include such finite and granular access and control of pickers and drives.

As a fourth factor, the Examiner is performing an improper piecemeal construction that uses hindsight to arrive at the claim elements. In other words, the Examiner is picking and choosing unrelated and isolated sentences or teachings from Yung and Blumenau with hindsight of Appellants' invention to allegedly obviate the pending claims. One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

As a fifth factor, no reasonable expectation of success has been established for modifying Yung with the teachings of Blumenau to arrive at the recitations of the claims. Yung expressly teaches a GUI in a biological laboratory. By contrast, Blumenau teaches using a GUI in a storage network. A biological laboratory and a storage network are very different systems. The laboratory of Yung would have to be greatly modified to turn it into a storage area network.

As a sixth factor, Appellant argues that no teaching or suggestion exists to make the combination because the references are directed to solving completely different problems. The background section of Yung discuses problems associated with different

instruments and application of various manufacturers in a biological laboratory. By contrast, the background section in Blumenau discusses solving problems associated with managing trusted zones of memory at a storage system for host computers.

These various factors show that elements in the claims are not obvious in view of the Blumenau, AAPA, Yung, and Dimitroff.

CONCLUSION

In view of the above, Appellants respectfully request the Board of Appeals to reverse the Examiner's rejection of all pending claims.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. 832-236-5529. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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VIII. Claims Appendix

1. A storage network comprising:

an automated storage system including data access drives that perform read or write operations on storage media and transfer robotics that transfer the storage media to the data access drives;

an interface manager communicatively coupled to each of the data access drives and transfer robotics, the interface manager aggregating configuration information for the data access drives and transfer robotics in the automated storage system;

an interface application provided in computer-readable storage at the interface manager, the interface application generating user interface rendering data for the configuration information; and

a graphical user interface operatively associated with the interface application, the graphical user interface outputting the configuration information in accordance with the user interface rendering data and receiving user input to grant and deny access permissions for hosts to both the data access drives and to the transfer robotics.

2. The storage network of claim 1 wherein the interface application receives the configuration information from a management pipeline at the interface manager.

3. The storage network of claim 1 wherein the interface application includes a state machine to determine a state of the data access drives and transfer robotics based at least in part on the configuration information.

4. The storage network of claim 1 wherein the interface application includes a render engine to generate the user interface rendering data.

5. The storage network of claim 1 wherein the graphical user interface displays a logical map of the data access drives and transfer robotics.

6. The storage network of claim 1 wherein the graphical user interface displays access permissions for the data access drives and transfer robotics in a table format.

7. The storage network of claim 1 wherein the graphical user interface receives user input to deny and grant the access permissions by selecting one or more of the rows or columns in a window.

8. In an automated storage system linked to a graphical user interface including a display and a user interface selection device, a method comprising:

aggregating configuration information at an interface manager for a plurality of system devices including data access drives that receive movable storage media from transfer robotics in the automated storage system;

generating user interface rendering data at the interface manager;

displaying the configuration information in an application window at the graphical user interface in accordance with the user interface rendering data; and

receiving user input in the application window to change access permissions of hosts to the data access drives and the transfer robotics.

9. The automated storage system of claim 8 wherein the method further comprises displaying the configuration information in the application window as a logical map of the system devices.

10. The automated storage system of claim 8 wherein the method further comprises displaying the access permissions for the system devices in the application window.

11. The automated storage system of claim 8 wherein the method further comprises receiving the user input in the application window to grant and deny the hosts access to the data access drives and the transfer robotics.

12. The automated storage system of claim 8 wherein the method further comprises receiving management commands for the system devices based on user input at the application window.

13. The automated storage system of claim 8 wherein the method further comprises copying all access permissions for a first host selection to a second host selection in the application window.

14. The automated storage system of claim 8 wherein the method further comprises removing all access permissions for at least one host selection in the application window.

15. The automated storage system of claim 8 wherein the method further comprises copying all access permissions for a first device selection to a second device selection in the application window.

16. The automated storage system of claim 8 wherein the method further comprises removing all access permissions for at least one device selection in the application window.

17. A method comprising:

aggregating configuration information for a plurality of system devices that include drives for reading and writing data to movable storage media received from transfer robotics in a storage system;

generating user interface rendering data;

displaying the configuration information as a logical map of the system devices at a graphical user interface in accordance with the user interface rendering data; and

receiving user selections from the graphical user interface to edit access permissions of hosts to the drives and the transfer robotics.

18. The method of claim 17 further comprising receiving user selections from the graphical user interface to add and remove drives from the system devices.

19. The method of claim 18 wherein the user selections include copying and pasting access permissions for a first host to a second host.

20. The method of claim 18 wherein the user selections include copying and pasting access permissions for a first system device to a second system device.

21. An automated storage system, comprising:

data access drives that perform read or write operations on storage media in the automated storage system;

transfer robotics that transfer the storage media to the data access drives; and

an interface manager communicatively coupling to hosts to provide access to the data access drives, the transfer robotics, and the storage media, wherein the interface manager provides configuration information so a user at a graphical user interface communicates with the automated storage system to grant and deny access permissions for the hosts to both the data access drives and to the transfer robotics.

22. The automated storage system of claim 21, wherein the graphical user interface identifies the hosts and the data access drives so the user can change the access permissions between the hosts and the data access drives.

23. The automated storage system of claim 21, wherein the graphical user interface provides a window that displays which of the hosts are connected to which of the data access drives so the user can alter the access permissions between the hosts and the data access drives.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.